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UniRef90 F9ZRT6 UniRef90_UPIO0046D290B UniRe990_14EKP6 UniRef90-UPIOOO3625C1F UniRef90 UPIOOOO40429AA UniRef90-F4A1M8 UniRef90-E1YBL1 UniRef90-DOKYK8 UniRef90-D5XAE1 UniRef90_B8DN64 UniRef90-S7U701
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UniRef90 - 1 1HOL3 UniRef90-B1HOL3
UniRef90-X1R4B4 UniRef90-R6IY35
UniRef90_E6U658 P Y S M D A N L L H H S Y E G Y DLL E D P WV E P PYSMDANLLHI SYEGDVLEDPWAEPE

 PYSMDANLLHISYE G GPLEDPWFEPE
 P Y S MD RNLLWHLSHE G G DLLEDPWNEPK PFSVDANLLHTSSEGKALEDPAVETP P Y S TD A N L L H $\square S Y$ Y G G A ALE D P W V V Y P Y S IDDANLEHTSYE GG\L E DP WQE PP
 PFSVVDANLLWHTS SEGKMLLEDP A A E E A F

Y SVDNNLWHTSHEGGDLEDPWNEPK P Y S MDANLLLHI SYE GNELESPATEPD


P Y S MDRNLWHLSHEGGDLEDPWNAP

YSRDQNI WHLSHEGGELLEDPWDEP


P Y S M D A NLL H I S Y E G GVLEED P LT E A E
P Y S M D R NL WHL S HE GS DL E D P WNEPK
P Y S M D A NLL L Hil S Y E G G NL E D P WWTP E
A Y S MDRNL WHLLSHE GEDLEDPWNEPK
Y S M D R N MLHCSFEGGELEDPWCEPGPN
PYSTDRNMLHISYE GGULE DP WQPPP
P Y S M D R NLL HI SFE GKALEDPWVEPD
PWSSDRNLLHISFEGGVLEDPWAEPP
P Y SMD R NL WHLS HE GGAALEDPGQEP PG
PFSVDANMLHSSSEGKVLEDPNEEAP P Y S M D R NLL H IIS YEA GI L E D P WF D P T T K PYSMDANLLHI SYEGTVLEDPAQEPE

YSMDRNLWWHLSHEGSDLEDPWNEPQYD
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## P

P Y S I D R N L F H I S Y E G G I L E D P P WN E P P
EGK P M WR WT L A P P E D D D M WR WTV S P E D
 Y QRTVSPED

$\qquad$

N D


DMFRWSTVSPEM
G D


 D E M L L L I

 \begin{tabular}{lll|l|llll}
$E$ \& $E$ \& $M$ \& $F$ \& $V$ \& $L$ \& $S$ <br>
$E$ \& $D$ \& $M$ \& $S$ \& $L$ \& $L$ \& $S$ \& $S$ <br>
$V$ \& $S$ \& $P$ \& $K$ <br>
\hline

 

D \& $V$ \& $L$ \& $L$ \& $L$ \& $T$ \& $V$ \& $P$ \& $P$ \& $E$
\end{tabular}

P Y S M D R N $N$ LI H H L $L$ S Y E G Y D L PYSMDRNLFHI SYESGVLGDPWQPPKN
PYSCDGNLLHLSFEGGELEDPWEEGGPH

P Y SMDWNI WHLLSHEGDDLENPANAPK
PFSVDANLLHTSSEGKVLEDPAEEAP
P Y S S D E NLL LH DS FE G GlLLE S P WN EP D P


Y SMD WNI WHLSHEGSDLEDPANEPNPD

PYSMDRNLMMLSSEEGGILEEDPYNEPK
PF SVDANLLHSSSEGKVLEDPAADSP


PFSVVDANLLLHTSSE GKLLLEDPAVEAP
Y S M D R NML HCSS E G GELLEDPWEEP
P Y S M D R N I L H I S Y E S GVLE D P WQ E P
P Y S M D R NL M HI S Y E GGILE D P Y K E P
$P \quad \square E$

YSMDANALHI SYE GGGLEDPWWTPD
P Y S $\square$ DENLWGRANECGILEDPWQSAPAD


P Y S M D A NLL LH I S Y E S GI L E D P WVE A E
P Y S IDD E N L WGRSNEC GILLEDP WAEP P




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| $E$ | $E$ | $I$ | $Y$ | $L$ | $L$ | $T$ | $K$ | $A$ | $I$ | $A$ |
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EDMMFELTVVDPK N
DSAFTLRSVPEK
ETMFVLTVMDPRK
GEYVYS RTVVAP E D
ETLLKMGVSPEQ
$A F Q \square T R P P Q K$


## QUERY

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RHG $\square$ MS 90 NR $\square 100$
ENG GM ENGIGRLDIVENRYVGMKSRGCYETPGGTIIMKAHRAIES
 RHGI GRDDMVENRFVGLKSRGIYETPGGTI LHDDAHALEQ KHGGGIADMVENRLVGMKSRGVYETPGGTVLTAHRELES
 ENGIGRDDIVENRFVGMKARGCYETPAGTVMUKAHRADES KHGI GRDDIV ENRFVGMKSRGCYETPGGTILLKAHRAIES KNGI GVVDMVENRLVGMKSRGVYETPGGTILYAAHQALES
 KHGUGRVDMVENRFVGDKSRGVYETPGGTLLHLAHRALEH ANGI GRLDLVENRYVGMKSRGCYETPGGTVLLKAHRGLES KHGGIGRLDLVENREVGMKSRGIVETPGGTVLYMAHKEMEC RNGI G IADIVENRLVGDKSRGVYETPAGTVLYAAHKELEY

 ANGVGIVDIVENRLVGMKSRGVYETPGGTIVYAAHREVS E H G G GRLD RHGVGR1D DVENRFVGMKSRGVYETPGGTVRAAHRAVES QNGI GRI DLVENRLVGMKSHGVYEQPGATILATAHKELEA K H GVGRI DMV ENRLVG GKSREIYEAPAATILMTAHRHLED
 QNGVGITDMVENRLVGMKSRGCYETPAGT G
 K NGVGRLDLVENRYVGMKSRGCYETPGGTIVLKARRALES RHGI GRLDMVENRFVGDKSRGVYETPGGTVLHDAHRDLEG KHGIGRADVVENRFVGMKSRGVYETPGGTILRAAHMAMES
RNGI GRDDLVENRYVGMKSRGVYETPGGTILGVAHRAMES
KHGI GRADIMENRFVGMKSRGVYETPGGTILEEAHRGVEQ ANGIGUVDMVENRLVGMKSRGVYETPGGTVLEDAHRELEQ
 KHGl GRLDDIVENRYVGMKSRGCYETPGGTVMLKAHRAVES

K H G

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| $R$ | $V$ | $E$ | $N$ | $R$ | $L$ | $V$ | $E$ |

K H GII G R R




GHGVVGRI DMMENR LVGGDKSREIVYEAPAMVVLABABRADES






K H A V $V$ G $\operatorname{l}$
A Y G V G I A DI V E D R L V G M K S R GVVY E T P G G T I L Y T A DQ E L E Y





K H GII GRII DHVENR LVVGIKSREVYECPAATVLLAABKAME D
E H GVVGRVVDVVENRYVGMK SRGVY ETPGGTILHAABRGLES

ENGVGRLDIVENRYVGMKARGCYETPGGS\|MLKAHRAIES

KHGVGRIDHVENRLVGDKSREIYEAPAASVLLTAHKELES
QNGI GRVDLVESRFVGMKSRGVYETPGGTILQVAHRGMES RNGVGRVDMVENRYVGMKSRGVYETPGGTVLHAARRALES KHGVGRVDVVENRFVGMKSRGVYETPGGTVLMMGHKQVES ENGI GRLDLVEGRFVGMKSRGIYETPGGTIMLEAHRGIEQ
 ANSI GRAD IVENRLVGMKSRGVYESPAAAVLYAAHEELES MNGI GRDDMVENRVVG $\square$ KSREI YEAPAAVILHCAHRELEK


## QUERY

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UniRef90＿E6U658


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 LTMMREEVMHLRRDS LIPRRFAEMI YYGFWYAPEMMEAMAAAAFI LTMDRETMHFKE I A GVVKYGELVYY GQWYT

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 LTLLD G GAMHLLK D E L M M PRYA ELLI YNGFWWSIT LD S GA G HLK K S I MPRYA EL I Y N G FWF S
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## QUERY

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UniRef90＿E6U658

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## D

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DKSQKTVTGQVTLKL
TAQKTVSGVVRMK

## Q Q

QSSQERVS GVVRVKFF
DSTQETCTGQ｜KMKK
DETQKVVSGTVKVKL

## ग



## K <br> D <br> S E <br> D K



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| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $N$ | $K$ | $T$ | $Q$ | $K$ | $V$ | $V$ | $S$ | $G$ | $T$ | $I$ | $K$ | $V$ |
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$N L T$ Y K P E R LT
M





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Y K G N M T



 Y K G NV $V$ V V GR Q S P N S L Y R M D Y V T F | $Y$ | $K$ | $G$ |
| :--- | :--- | :--- |
| $F$ | $K$ | $G$ |
| $Y$ | $D$ | $V$ |
| $Y$ | $K$ | $G$ |


 $F$
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$Y K G N C I V V G R$
$\begin{array}{ll}1 \\ K G N A M & V V G R R S \\ K G N D C P A G A K S\end{array}$

 YK GSVN VVGRSSPPASLVYNE EFVT F F


 FK G S A MVVGRKS S $\begin{array}{lllll}Y & K & G N & C T & V \\ Y & G R & K & S \\ Y & G & V & I & L \\ G R R & S\end{array}$ $F K G Q F Q A V A R R$ S K G N $1 \square P$ AGASS $P A G A K S$
$V V G R S S$

DETQKTVVT

QUERY
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UniRet90_D5XAE1
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## R

## E $N$

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$R \| V$
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 EDAFA ITKA KAE | $\mathrm{V} D \mathrm{P}$ |
| :--- |
| P |

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 E D
$\qquad$
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## K

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GDTAELVGKMEEG GGAAKLVGRLEAGKS $G L G V \mathrm{~S} V \vee \mathrm{~A} S$

GPTAD $\square$ MGE $\square E$ VGGAE A PAG

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UniRef90 D6Z7T5 UniRef90_UPI00037F1FF6 UniRef90-D6ZHZ2

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Unirergo_Q8FIIVI9

PYSMDANILD ${ }^{10}$ S YEGGV 20 EPYTAE PYSIDDENLWGVANESGVLEDPAAHAP YSKDKNLWHLSHEGLDLEDPSNEPQY YSVDKNI LHTSHEGGELEDPKNAH PYSIDQNVWGRAVETGFLED DWNAP YSRDANLWHISHEGGEL ENPWEQP Y SRDENAWHISTEGGVLESTWN SYSRDENTWHLSHEGLELEEPENEANY PWSMDANIMHISSYESGILEDPNVEGPPN AYSTDANIWGATHEAKTLES LDVS DESV PYS DDNLWGRADECGVLEDTWNEPPS
 PYSI DENLWGRANEAGVLEDPWVGAP

 YSIDQNLWGRSNECGILEEDPYAAP PWSMDENLMHISYE GGILENPRNNPPS
 $P Y S \square D V N L L G R S \square E A G V L E D P M S P P$
PYSDDQNDWGRAVETGFLEDDWNGP
AYSTDANILGATHEAKDLENLDASI

PYSSDLNNVLGRSVEAGPL

S
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D
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D

SYSVDENLYHTSYESGMLEDPM VPPLKEMFKMTVDPED AYSTDANIWGATHEAKRLEHDDTSLETVEPTMGVRFWDPA PYSEDENLMHASHEAGDLEDPAFQPP YSVDANLWGRSTEAGPLEDPWREPPA YSRDQNLDHDSHEGGDLEDTKNEHKA
 PYSRDHNI WYIISHEGGVLEDPSQGMP PYSDDQNLLGRSDEAGVLENPIVEEP

SFSVDANMLHVSSEGKVLE FS D Q NV V GRAVE T GF L
A Y S E DR N SLWH L S H E GGLE

## P WS MD DN I I HCSYEA

P Y S ID A NLWGRA IE TGGFLE D I WN A P P WSMDENLMH I MS YEA GILENPKN QAPP G Y S $\square D E N L W$ WS R S DE G GELED P WQEP P Y S R D A N A WH DS H E G G E L Y S ID E NLW L R S IDG G PL D DPMAEP P F SVV Q N L W GRA I E GGVVLENPNNEPPD D
PWSVDENIWSRSUEGGRLEDPSFVPP YSRDENAWHDSTEGGVLESPANAP PFS IDDQNVWGRADETGFLEDPWNGP
AYSTDANDWGATHEAKAL EDLGTSME


PSRDANAWH


30 D D MWRWS VS E D A Y A LTK A $\square$ E H EKHGFELGVFPTQ NKEMYS MVTPP EK | $\square$ | $E$ | $D$ | $Y$ | $E$ | $Y$ | $T$ | $A$ |
| :---: | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $T$ | $D$ | $G$ | A | W |  |  |  | NA DCWA WTVSSPGQ K H MLLKLTAVPEE

 DIWTMTKNPED A $\qquad$

SKEVWT M


$\qquad$


 A N N G
$\begin{array}{r}T K \\ \square \\ \hline\end{array}$
$K D$
$D D$
$E D$$D V Y$ H LTTCRPRAA
D D V L L M T T A P L E N
TKD
SKT K
$P$
$P$
T K
T K$S N$
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|  | $L$ | $T$ | $L$ |

                    K H MLLKLNTTTMDPE N
                        D DI WEMT
                            SEQVWEMT QR
                    \begin{tabular}{ll|llllll} 
    S E Q \& $V$ \& $W M$ \& $W$ \& $K$ \& $S$ \& $P$ \& $E$ <br>
$R$ \& $D$ \& $Q$ \& $I$ \& $Y$ \& $T$ \& $K$ \& $T$ <br>
$D$ \& $P$ \& $R$ \& $E$ \& $S$
\end{tabular}

                            TKAI Y DYTATP PEA
                    S K QV WT M T V D P P D D
                NEPNY
                    VE P M GVK F WD P D
                    K DMWKRTVDPLD
    KATDAV YT WT P QV
■E E I Y A Y T A D P A
EFAKTQDPK

E D MWKLTVDPLK
EDAFAWTVAPEK
A DAFAWTVAPE

K DCWVWTVDPLDD
TKDCYSYTDDPAF
A T D A
$\begin{array}{lllllllllll}T & K & D & V & Y & N & Y & T & D & D & P\end{array} A$

L L Y T K T T Q D P A K E E A F E WTVDP P E K
K G DWT LTTDP M D
E D MWKLTVDPGK
AF A WVKTKN


| $K$ | $D$ | $C$ | $Y$ | $S$ | $Y$ | $T$ | $D$ | $D$ | $P$ | $A$ | $F$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $T$ | $P$ | $I$ | $M$ | $G$ | $V$ | $A$ | $H$ | $W$ | $D$ | $P$ | $E$ |
| $K$ | $D$ | $V$ | $Y$ | $D$ | $Y$ | $T$ | $Q$ | $D$ | $P$ | $Q$ | $V$ |



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UniRef90-K2JPB9 UniRef90_UPI0003B5EB78 UniRef90_UPI0004249F08 UniRef90_A0A023X5X4 UniRef90_U1ES14 UniRef90-Q489P3 UniRef90_G5E3P6
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$\qquad$
 EHGI GRI DIVENRFI GMKSRGVYETPAGTILRAAHDDIES





 RHGLGMSDQI ENRII EAKSRGUYEAPGMALLYDAYERLVN RNGFGRDDMI EDRVVGMKSRECYECPAALLLIQAHQSLET

 QHGI GRIDHI ENRLVGIKSREVYEAPAAEVLIKAHQDLEN AHGVGRVD VVENRLVGMKSRGCYETPAGTVLLAAHQALSH RHGFGRI DMV ENRLVGDKTREVYESPAGLMLIRAYDELES




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 R $P \vee G V G L V D I C E$ E HG G G R R H G I G R I D V A Q GVGRIIDVVE DR LVGIKSREVY A H GVV G R V D I V
 $R H G L G M S D Q \mid E N R D I$ A N Gil GRESD V E S R F I


 $R H G V G R I D I V E N R F I G L K S R G C Y$ A Y GYGRI DHI ENRVV
 KHGVGRDDVVENRLVGIKSRGCYETPGGTIDMVADRAVEQ
 AQGVGRDD VVEDRLVGDKSREVYEAPGAMVLIAAHQELEG KHGVGRVDIVENRLVGMKSRGCYETPGGTVMMAADRAI DE


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| :---: | :---: |
|  |  |
| UniRei90-UPIO0020D973B | MESDVAHFKPIVEQQLANLTYEAK |
| UniRet90 | VLDRDTLHKKKELAVTFGELVYDGKWFTPLRHAL S |
|  | DKLTLHCKQELAQKYGEI AYDGLWFTTLRESL DA |
| UniRef90 UPIIOOO3811AAC | VTLERDLARFKRQVAQRWSELVYDGLWFSPLKNAL DSFV |
| UniRef90-F7R | HDRACQRLRHDLGQRLSDVLYDGQ |
| UniRef90 X2H4F4 4 | L L DRDSFKWREQLGLEMAYVVYDGRW |
| UniRef90 S3KON4 UnRef90-T2MY |  |
| UniRef90- U7JM | AVHNEETIETYHNEGRRDGRI |
|  | AETLKQKAKLDVEWAS |
| 96 | PLIEQKMSETI YNGLWYSP俭KSL VAFD |
| UniRef90-Q3 | DEIIMPKYAKLI YNGYWWTTERKMLQALID |
| UniRef90--2LX42 | LILDRESLHLRDQLADKYAELVYYGYWFCELREAL DAFA |
| UniRef90-H4GIAA | LTMERGLGHYKPLVEHEDSNLIYNAQWFSPLFNSLM AFI |
| UniRef90-K2JPB9 | LVLDKVCSQHLKFLGLQFAQLLYDGRWFTPLREAI VAGV |
| UniRef90-UPI00038 | 1 VLDRFTYHYKITHIKHYAEVVYNGLWFTTLRESL DAFN |
| UniRef90-UP1000 | LVLDRTTQDYRIRLGNEFAQLLYDGRWFTPLRDVMLAA A |
| UniRef90-AOAO | MTETKDVIARFKAAIEQRYAELTY |
| UniRef90 Q489P3 | SVGLEFSHVIYDGRWFTPLAKA |
| UniRef90 G5E3P6 | MDREVRKITKQELSQKFSQQVYNGF |
| UniRef90-Q2J§ | KRGIDQRWGEIVYDGLWYSPLKSAL DAFV |
| Unil |  |
| UniRef90 UPIIOO02FC68B1 | LTV NPDVLEFKSLVDKKWGQLVYRGFWYGP |
| UniRef90 UPIO004184CDE | VTLEREQARFKRSVDQRWGELVYDGLWFSP LKDSL |
| UniRef9-UP1000371 | Al HNEDTADNYHAEGRRLGRLLYEGRWLDPQSLMLRESLT |
|  |  |
| UniRet90_UP10002 | TLSPEVIEFKDC EKKWS |
| UniRef90_-4GLG7 |  |
| UniRef90 D2R113 | DRDLMHLRDSLAPVVAEMVYYGFWY A AKMDALLAAFN |
| E8L13 |  |
| UniRef90-L8DIL3 |  |
| UniRef90-M5RLD | VYYGFW |
| UniRef90-Q5YYD3 | W |
|  | AIHNEDTVAAYHNEGRRLGRLLYEGRWLDPQALMIRESLQ |
| UniRef90-T1EFV | LTLDREVRKKRHLAAMAEEVVYGYWHSPE |
| UniRe90-UPIO0047DE103 | VTMDREQARFKRTVVDRWSDIVYEGQWFSPLKKRSLR |
| UniRef90-G00 | FVSSKHENQFKEKVDQEWA |
|  | DREVLRLKEGHQLEF |
| Uni | EDSLAAYETEGRRLGRLLYEGR |
| UniRet90 UPI0003A23721 | DKEVMHLRDMLTPKFSELYY |
| UniRe | DKDTLHFKQMVSYKYGELIYNGLWYCKLRESI DAFM |
| UniRef90-E3PU10 | LTLDRNTTHTKSTLADEYAKLIYDGL WFSPLRESL D |
| UniRef90_14XOF6 | VI EKKLT ELI YEGLWFSPLRTAL |
| UniRef90 UPIIOOO380BE43 | L QHUYANLVYEGCW |
|  |  |
| UniRef90-UPI000255F6D4 | VTLEREQARFKKTVDQRWTELVYDGQWFSPLKKNL D |
| UniRef90_UPI00036BE4B4 | VTVERDVARFKKSVDQRWGELVYDGLWYSPLRKAL DVFI |
| UniRef90-13DJW3 | DRETFHKKDELSFLFAKLVYNGQWFTRLRKALGSAFVV |
| UniRef90 H5TEZ9 | QI GLEYAHVMYDGRYFTAINDSLLAAAN |
| UniRet90-UPIO0035 |  |
| UniRef90_L1J |  |
|  | VYYGLVNDPLFDA |
| UniRef90-D4YM | TV ${ }_{\text {V }}$ |
| UniRef90-B8D8K8 | , |
| UniRef90-M9MIV7 | LTLDGEVRRIRDQITTKFSEQLYYGLFFSPECEFVRSCIP |
| UniRef90-E9G328 | LTMDREVRKIKQNLQQKMADLVYCGFWFSPEFDFIRQCVD |
| UniRef90-UP100026C7FC7 | L CuDRATLHLKQSLQQTYANLVYEGRWF |
| UniRef90-H2 | LTMDREVFKLKQYLKTQFESQVYNGMW |
| UniRef90 UPIOOO3B59901 | CLDRETYHYKQQVSDRMAELYYGKWFTTLMDSCM AFM |
| UniRe990-UPIOOO3A6C35C |  |
| UniRef90-Q0KKQ0 | VAMDREVMRLRDMLSPKFSELVYNGFWFA |
| UniRee90-UPIO0038055C1 | LVYDGQWFSPLKRSLLDAF! |
| UniRef90-Q9K4Y8 | WK HTVAAEFSHLVYDGRWFT |
| UniRef90_C2B | VYAGK |
| UniRef90 W2 | YEGRWMDPQSLMTRDS A |
| UniRef90-X0A2P0 | LVMDSKVRII RDRLSDDWAQCI Y G GMY |
| Unirefeto-AOLUB9 | , |
| Ref90_G5AMV5 | MDREVRKIKQGLGLKFAELVYTGFWH |
| UniRef90_A8 | LNKREYRLKRMLDSYWADLVYDGLWF |
| UniRef90-UPIO000E0EEA | FAHVMYDGRWFTALNDALD AGA |
| UniRef90-M21 | NYAKLLYNGLYFSPEREFLEDS |
| UniRef90-A2BJL6 | MVYTK |
| f90 Q469Z8 |  |
| UniRei90 - UPI00037AFFD9 | DRDSFKWREQLGHEMAYVVYDGRWFAPLRKSIQAA |
| UniRef90-A1A1W7 | CCLEREQHRDKRDIDKRWAELVYDAQWF |
| UniRef90 |  |
|  |  |
| 37F1FF6 | Q |
| Ref90_D6ZHz2 | RYKRQMEPAWSDLVYEAQWNSPLKKSLDDAFV |
| UnRef90_08FTM9 |  |

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UniRef90－F2LX42 UniRef90－H4GIA4
UniRef90－K2JPB9 UniRef90＿UPI0003B5EB78 UniRef90－UPI0004249F08 UniRef90－A0A023X5X4 UniRef90＿U1ES14 UniRef90＿Q489P3 UniRef90＿Q2J866 UniRef90＿UPI0003B772AA UniRef90＿UPI0002FC68B1 UniRef90－A3WJK5 UniRef90＿UPI0004184CDB UniRef90＿UPI0003717016 UniRef90－R8ALW7 UniRef90＿UPI0002F20C1C UniRef90－F4GLG7 UniRef90－D2R113 UniRef90＿E8LK98 UniRef90＿L8D1L3 UniRef90＿A9BDR3 UniRef90＿M5RLD1 UniRef90－Q5YYD3
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UniRef90－D6Z7T5 UniRef90＿UPI00037F1FF6 UniRef90－D6ZHZ2

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200 DKSQEYVNGTVRVKLYKGSVSVVGRKSDDSLFDEKTATF
 EDTQQNVTGKVRMRILYKGNIIANA GVWSPYSLKYREDVATY DVT QENVTGTVKLKLYKGNIIMNAGIDDTKNALYDEGISSF LSSQEHVTGGVRMVLHGGRA TVTGRRSSQSLYDFNLATY

 ENSQKYVEGTVRLALLFKGHVYVKSRCSSDYSLYNKELVSM HWVASAITGTVTLKLRRGWDYSILKTQGPRFSYHAEKLSM AYTQKYVTGEVRIKLCKGGLF VDGLHSDYSLYDYNLATY DESQAVVNRVVRVKLFKGNVIC EGRKSPNSLYDKNLATY R SQEKVNGVVRLKLYKGSVVIVVGRKSENSLYSHNLASF
 KASQTDVTGTVRVKLFKGNVIC EGRKSPLSLYNEDLATY
 EKIAK PLTGKVVFKGYKGNV TVVGQKRASKSMYSNALATY


D S A S A GVVS G E V $V$ RII R L




 ALLS E Y A T G E V V L K L Y K G QVV T PV Q K R
 RES QK PVTTGEVTLLKLYKGND，VIDSRSSPNSLYDED\｜ATM



D F TQRRV A
RWVGNAITGSVTVRLRRGNDWSVLDTR




K E T Q Q V F V N G T V
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$\stackrel{\square}{\mathrm{D}}$PWSMDQNLFGRAVETGFLENDWNGP
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 LDDUAEEVTVGFAEGYPVSLNGREYSDPEEVLEANAIGG

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APDKET APE EP E N VV RI

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 APDTPADLNI DFEKGI PVALTGNKTTGSLAI FSALINEI GR





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 A P N E P E DVVVI E F R K GLLP V S L I S K T V T E P T A L F LAA A N A L A R


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GH G V G R L D MV E D R L V
GH GI GRNDMME DRRVVGI K S REVV
KHGG G DDDDVESRVVGMKSRGVYENPAASILYFADEKLQS

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KHGI GRNDMIEDRIL
MHGIGRVDMLEDRLIGKAEN


S Y G W G R L D M V E N R R V G I
K R G IIG R I D HV E N R LV GIIK S R E I Y E A PA A T V L L Q A H Q A L E A KHAVGQVDLVENRLVGIKSRGAYETPGGTVLYEAHRALES
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 K H G V G R ID D V E N R F I G M K S R G $\quad$ I Y E TPA G T I L Y H A H L D I A A
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160 AVHNEDTIANYHYEGRRLGRLLYEGRWLDPQA LMMREADQQ

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YS $\square$ NQGM $\square G \square T \square G G K E T K G S W D S P P \quad D S V C P \square T \quad S \square E D$ WSI DTNLWSRSVEGKELED MPSYVPGEELYE WTDA YSIDENLWGRSIEGDEIADPSVEVPEEAFE WTRR PYSTDANLLGDTHEAGKLES LDEVAPSFVEPKMGVTVSPQC YSIDTNLWSRSTEGSELE EPSYVPPEDVYEWT TA
 $P W S M D E N L M H D S Y E A G I L E N P K N Q A P P G$ LI THTKDPA T YSDDENLWGRSDEGDDI SDPSKEVP PWSMDENLMCDSYEAGDLEKHKYHAPPG

## P

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WSVD T N L W S R SVVEGDELE DPNYVP P TE TVYDWTDE P WS TDENL FHDS YEA GDLEDPNTTPPT_DMWKLTVSPED



 WS ID T NLWS R S IE G GK LED P NYTPP EDVVYEWTA D P AT



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UniRef90 F2LEB0 UniRef90-H1 XRZ1 UniRef90-Q4J8F1 UniRef90-X8AWG9 UniRef90-LOAHAO UniRef90-E2LPL8 UniRef90_UPIOOO16C475C UniRef90_SOAS47 UniRef90-Q1D261 UniRef90-UPI000372F9B2 UniRef90 B3H778 UniRef90_C7PM55 UniRef90_UPI0004069C47 UniRet90_A0A059LA87 UniRef90-Q18E36 UniRef90-R6Z5Y5 UniRef90-G5H8P0 UniRef90-E4RVQ7 UniR Refo-E3JA75 UniRef90-G2Z7V5 UniRef90 UPIOOO36ED524 UniRef90_UPIOOO40E15EF
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UniRef90-E4T5P2 UniRef90-UPIO0036DD34C UniRef90-F4AZP8 UniRef90OUP10004709E3B
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UniRef90_Q9HMQ2 Y S QKDVV|NGTVIK|LMAYKGNAYVTGRFSESSNLYSETEASM KPSQ $\square$ TVV GQVVRLRLYKGNVIVLGRSSETENLYDATESSM DESQKGLDGEVRLRLYKGSLRLVGRRGEKPGYSPKYMTY D
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 ETTNERVTGTVTVRLEGGRARAVARDSA SAVYSADAVSF AKAQEPVEGTAQGSVLKGQVY ESQNQKVSGTVFVKLYKGNA TVVSLSSPHSLFDHSLATF EDSQELVNGKAVIQVLPGYTRAI AR E S

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E QMNK WVV
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$A E T Q T V G T V T I R F E G G Q A R P V G R S ~$


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UniRef90 J4UIO3 UniRef90-Q756M4 UniRef90-E6NTW3
UniRet90
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DSTEGFSPEATSGFITIDADRDEKYGAAKDKAG 2200 DELTGTFQPTDTTGFIAIQAIRMRGSSKKYGQSKKDKGE ARESVFDQRAGEGFSKLWSLETRLSSLR

## D

LTG FQPQEASGF IAVQAIR $\square$ K K K GEAKR $D V$ V G I E QEDATGVAKYHGFQSRANASKPELKTD GGAGE DVH GTLS PYAATGFIEVNAMRLKE H


GEENEAWDSRDARGF DK $\ \mathrm{FGNQ}$ GK
GETNRSFTGDDVKGFTKIFGNQTSIYHQDKEHANK ESV GSFNHMDSEGF $V R V \square G V S A K A L K V K$ GEANHMWT GAEAAGFAKVYG
GEENALWDGRDAEGYTTLAADPSLLAKKARA
SS ASFNQQDCGPTAQIWGLPFELLARREKESKKVGAAS
EG G GSYNHADSEGLLRVLGVSARVLA
GEMNNAWTGEDVKGFSKI FGNQVAIVHQVNATLEKK


NKGWYPSDARGFDEI FGMHSLVARK

DELGG FEPTDTSG
EAIGSFDHADSEGFDRVLQVSARALAA
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EGSE $\square Y Y$ NQADAAGF $\square R L Y G \square P M K \square R A M L K$
GEMNSGWSGEDVRGFSKI FGNQTMI WHQVAE
GEMNKGYTGEDVKGFTRI LGNQTAIFHK
EDDQGAYNQQDAQGFDSLQALRLRTLAR
TSSIGE $\square T Q Q D A T G \square A K Y H G Y Q G R I A N A A T E T D T K$
GEVNKA WTADDVKGFTKILGNQ IKII YHNVQKRNKK
GETMSDWTSDDVKGFGKI FGNQNKI WYKVNKG
GEMNNAWSGDDVRGFSKIASNQVMIHQKIQELAEKK
SRV GAFDHKDSEGFLQVLGVGARTA
GEMNNAWTSDDAKGFLKILG
GETNKSFSGQDVVGFTKVIANPDKПY
GEMNEDWTADDAKGF $\square K\|L S N P G K\| Y N H V N Q Q$
ET GVFDQGSSKGF DD TYNETVRSNRVKKA
GEMNSAWSGEDVKGFTKI LIANQLKTY
GE $\square$ NKAWTPDD $\ K G F T K I M A \square P S K I$ YHM $\square$ QEKNRKK
DTGDT YDQSMARGF $\square \mathrm{DV}$ VS MPAKI ASMREQRNA
GEENKGWTAEEAKGFIKI $\square G N Q N K I Y Q Q$
GEVNKAWTSDDAKGFTKIYSDPNKIYHAVQKKNG

GEMNKGWTADDAKGFDK IVSNSTKIHQA
GEVNRAWSADDVKGFTKILGNQMKIYYNVQKRNDK
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GEENQGWTATEAKGFIKILGNQSR1IANQ
$S K G D$ LFDHNAAVGFI KLWGLPTKVYANVTQKN

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AHGASGTASGDAASSE

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PGGAPA $\square G E L L G G D K$

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A YT $\square$ NEN LLGVTMSGGE V D DWEAPGDGARGWCAPRSA PYSTDENI WGRSDEGGKLEDPKTVPP EEDYTLTVSPSK YS $\quad$ NK K GLWGTSVGGKETLTSTHNLPEEAWPTKITETNQ Y S I NKGL WGTSVGGDETLTSNDPLPEEAWPTKLTRKD Y SVNKGGWGTSSVGGAETLTSN N W W YSVNK GLWGTSVGGKELTSRNYILPEE


$D K T M W C R S \prod A S G G \square G \quad \square D T K \square P E E \square W M W L V P P Q K$ SYT TVNENLLGVVTLSGGEID DRWEAPGEGARGWCRPRAE
 YSINKGI WGTSVGGAETLTSDQYLPDEAFPTP I I TKKDE PWSMDENDIHTSYEAGDLEDPDHTPP E KE Y S I N K GI WG TS SGGGEETLK S STSLPEKAYPTKLS
YSSNRGGLWGTSVGGEETLTSNKALPDSAYPSQLQ
 YS I NQ GLLWGTSVGGSETLTSDQPLPDSAYPSALEKEKEE
YS $\square$ NQG $\square W G T S V G G Q E T \square T S H Q N \square P E E A W P V P V T A T$
PWSMDENLMHTSYEAGILENPKNQAPPG LYTKTQDPAK P WSMDENLMHISYEAGI LENPKNQAPPG LYTKTQDPAK



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YSVNENपMGATTSGSE $\square \quad D \square W E E P S D E T Y V L C N \square P D K$ YSINKGLWGTSVGGVET $\quad$ LGSKEPLPETAYPSALL
 AYSTDANIWGATHEAKKLESLHTSIESVNPIMGVKFWDPD
SFSTDENLWSNCMESHELNKLD LHYDEKWFSLTKSLEE Y S $\square$ NENLMGATVSGSEI DEWKEPSKESYILCNTPDK SRDGNLWCRSREG DTSGEENEPKKDTFMLTVNPED PYSMDANLLRDSYEGGVLEDPNYAPD DKMWRLTLSPEK YTDNQNLLGTTFSGGEI DEWKKPDEAARSLTAAPAD SGDANL WVREYESGCLDNPDFTVSPD IYRWTRARQPRE
 SGDSNLWCREFESGILLDD E P P L L HEVPEEMYAWPSA SHSGDSNLWCREFESGLLDDDPEWFPVPEDYSWTAAVVPER Y S VDA A L WHVSTEGGGD EHDENEHK K DVVYKQCVDPED SGDSNLWCREFESGVLDNPE GFDLCESLFHWSVWNPA A H S DDANLGGVSHESVELESDANSPDSVQPIMGVR PEQ S GDANLWCREFESGVLDDPEXSFTVSESLLFSWSKWNPA
SGDSNDWCREFESGDLDDPEN FTDADS DFTWSRWQPE SYSGDSNLWCREFESGLLDDPE DFRTPETLYRWSSSK SGDANWWCREFESGWLDNPEDFRVPAE DVTWTAQPMM
 SGDENLLWCREFESGPLDDPED FRMPEEAFHWTRGRPA S G D E N L WCCREF E D G P L L G D P E G G F C SGDENLWCREFESSGPLLDDPES FSDPEAAYQWTRRN


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VITLI I A QLINATGGK
$V$ S NI QRVQELAA
 L N T L A G MNALAG
 SAD DPQILQI TYDQGRPVKI GGKEQTL/VEVFEMLNAIGG PS GESEELEI TFEKGYPVAVDGEEYDS V SLIDEHLNELAG $V$ V L NFEKGELVALLNGDKDTP APDK $\square$ EDVTLTFQHGYCTSINGEKLS P APDAEELVELTFDGARCVAVNGKRLSP FPEESLKLRI EFKQGQAVAINGEEPKGVEVMQYLNKILG
 WPPQPLRATLRFVHGETVALDGEVMPGH
 NMGTQRLKLSFTKGELTAADGGKDTP VALI EKLINAIAS DDASELRI TFEHGEI AAVVGEAFADKVKAI RRIEEI GS
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 EKKENELVKLTFSKGEIDAVNNQVGDPQ LIESEMKTVTLEFEKGELCGLNNEKMNA
WPSEP $\square T V K L K F V G G E A V E L D G K P L P G A Q \square L A R L N E L A G$
 KDLILHFEKGEII GI DNDKFNHPVEAI EYLQNMAQ

APSEPERLSIE EFKA
APDPTVTFEEGGPALNEPMATAT EEGLPVALNGKAMNLT DLVSSLNVI GG WPA QALEVVLRFAQGEAVALDGEAMDGAALLAKLNGLFG



E Y Y K K IVIE L K F K K K G E L F S V N N N I SPDTPDVLEI EFEKGKPPACDGAVRRSALELFMKLEAMAS
 A

EARTLKLHFKEGQFVGFDGQRFDHSVAAVQADEAVAA APNTPDTLEI EFKKGVPVKVDGTTHQTSLELVMYLNEVAG APNTPDILEI EFKKGVPVKVTNVKDGPPTRPPW SSSCA APDEPEEVTVSFEKGVPIAING DLLSPLDLMEKANSLGA
 QETEK VK LTFFQGELVA $\square$ NGQKNTPE $\square$ N $\square E M L N S \square A S$ YPKKVTKLETTFSEGKVRSVNSSSNKGPA LLRELDALGG LEKEKKTIELHFEKGEFIGGIDGVVGGPVSQIQKLEKIAS

 VK IDDTEEVTVSFEQGLPVAA NGKEYDDKVALVLEANAIGGG QRVPVKVDGTTHRTSLELFVYLNEVAG ASEDPETDELSFQCGUPTCINGKHMNLS RLIQSLNEI GK
 APHEAESVDI GUVSGDPVSVNGKKLSP ASLLTKLNEIGR
 VD
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 HHLEGDS TK TGFKQGYPVT LNDK P T T LLEELTAF TNNHVG STKEPSQISITFEGG\PTCVNEEKLPLLQMIEYLNKEVG



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UniRef90－GOA9P0 UniRef90－W9FRE2 UniRef90＿A4DOTO UniRef90－UPIO004798DOE UniRef90－T3ZFY4 UniRef90－V5FE90 UniRef90－J2R098 UniRefolo－F9T321 UniRef90－X1UG45 UniRef90－E8VWT3 UniRef90－NoBO13 UniRef90＿V2J597 UniRef90－H4EZN1 UniRef90－UPIo00476620F UniRef90－T1AUW5 UniRef90－BOUN38 UniRef90－M2T590
UniRef90 W9NLC9 UniRef90－W7IWNO UniRef90－X5PEW1
UniRef90＿R5MA18

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 KHGVGRIDHVENRLVGIKSREIYEAPAAEVILKAHKALES

 SYGUGRTDSMEDRMLGLKVRENYEHPAATTLLNAHEALEG
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 K H GVGRR $\operatorname{CRS}$ C Q A Q H

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 VF A IIG R D ITH V G D T I V G II K G R V G F E A A A A I I
 AYA GRDIHVGDTHIGKGRVGFEAAAALILKAHSLLEK
 RHGLGMSDQ1ENRIIEAKSRG｜YEAPGMALLHIDAYRLAN



CFQUGRYSGDEHLEGGEKVLEAFEAPGLVVLEAAHRALEH KHG GOLDMVENRLVGMKSRGVYETPGAAVLQAYRTET
 KHGMGCDDGMENCFDRDKSRGI YKTPAGTLLQQADDDI ED
 $K H G G G V I D T V E N R L V G M K S R G I Y E T P G G T I L Y E A H N D L E S$
$S$ AYGVGRYVGFDHLDEDEKVLEVREAPAAHILMKAYKLLET AYELGRYVGFDHLDEDEKVLEVREAPAAHLLMKAYKLLET ASVFVPGDHVENRLVGDKSREVYEAPAATVLLQAHQALEA AYE：GRYVGFDHLDQDEKVLEVREAPAAMLLMKAYKLLET AYGLGRFTGREHLAGGEKVLEVREMPAAHLLDDAYRHLET RHGVGRVDLVENRFVGMKSRGVYETPGGTILDAAHRGIES AVGLGQFCGLEHLDQGEKVLEIREAPAASLLMDAYQHLEM RFGHGRYVGLEHLSGGEKVLEVREAPAAALLMDALRHLET

 KFGHGRFVGLEHDSTGEKVLEVREAPAAAII MDADRHLET

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| UniRef90 UPIO0047C670F |  |
| UniRef90_M7NB35 | NRHENWFKEDVD |
| UniRef90-09HKF | NRNEAEVKMNMDWQFAKFVYGGLWHDPVMNA |
| UniRef90-Z2UAW5 | KDVAHFKP\IEKQFAEQLYNGLWFSP |
| UniRet90-F7GCK1 | MDREVRKDKQGL GL |
| UniRef90-U7R305 | CSNRNENWFKEII DKKWA ELVYSGLUWYDPLIT THL NQFI] |
| UniRef90-ToQ | QLLDKRSLTLYQHISAYLGTQLYQGYWDDLGSRMTRKADS |
| UniRef90-MOB | LVLTQEEREFKQLIDQRWSKKGYEGLVDAPLVGAL EGFI |
| UniRef90-UPI0004714AED | LTKWQQYWKEQLANWYGMLLHEGNYLDPPV |
|  | ATLDRNSFKLYKQMGELISNLVYDGRYYDKTVQAAR |
| UniRef90-R1F6 | AVLDRRAAALFA HLSSLVSNQUYDGRWFDPATVAARKALH |
| UniRef90-C7R8V1 | HT SKWQQFOKEQLANFYGML |
| UniRef90-R5SB04 | TLSKWQQYWKDQVANWYGMFILHESQYLEPVMRD |
| UniRef90-T1BDU0 | AVLSKAQNRFKPEAARQWVELVYEGFFHDPLKTD |
| UniRet90-UP10003 | HTLGKWQLHWKDQLGDWYGMLMHEGQYLDPVM |
| UniP | LK WQQQHKEYLSNWYGMLLHEGNYLDEVM |
| UniRef90 U2QN10 | STLSKWQQYWKDQVGNWYGMFLHESQYME |
| UniRef90-R5VOH4 |  |
| UniRef90- F9EM33 | AVMSKKQRSLKCERFTYEWSQCLHNGKLFSPEREDLQESSL |
| UniRef90-UPIO0047B0D66 | LTKQQLYWKQNTAEMYGTMLHEGQFLEPVM |
| UniRef90-UPI000421C68B | HTLSKWQLQHKDYIANWYGTHLHEGQYLDPVMRD |
| UniRef90-UPIo00382AED2 | HTLTKWQLQHKEYLANWYG |
| UniRef90_14AQY | HTLSKWQLYWKEQLSNWYGMFVHESQYFEPVMRNI |
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| UniRef90 - Prioou466C155 | AVLTKQQNRFKPEVARKWVELVYEGF |
| UniRef90- UPIO00401C95D | HVLTKWQLYWKEQQASFYGNWLHEGQMIDPPTMRDMEA |
| UniRef90-UPI00036415B8 | HVLGKWQMHWKDQLANWYGMLMHEAQFLDPVMRD\E |
| UniRef90-D5BG04 | SKWQLQHKDYVANWYGTHLHEGQYLDPVMRD |
|  | PQRTLKIKNII DTEWTELACFGL |
| UniRef90 W4T416 | HTLSKYQQMMKSQLSDWYGNWLHEAL |
| UniRef90-SSYAE1 UniRef90 S2LNU | , |
| UniRef90-14EHS3 |  |
| UniRef90-UPI0004162E3B | AVLSKQQNRFKPEVARKWVELVYEGFYNDPLKTDL EA |
|  | AVLTAKQNEFKKFVGNKWVELLYQGFYFDPL |
| Un | LSKWQQYWKDQVSTWYGMFLHEAQYLEPVMRDI EAMLD |
| UniRet90-E4TPD2 | HTLTKWQDFWKNQLSEFYGNHLHEGHYLDPVM |
|  | MDGRVRELRDQFSSUWSRL YNG |
|  | TKWQOYCKEQLS WY |
| UniRet90-EXX410 | TK WQQYQKEQQGNF Y GM |
| UniRef90 ${ }^{-1 \text { x1GZM2 }}$ | MT LA K D QLR FKQKVAVE |
|  | SKWQQFQKEQLSNFYGMQLHEG |
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| - |  |
| UniRef90 G7NGB5 | FTMDWEMHKTKQGLGLKFAELVY |
|  |  |
| UniRef90-T1A | LSGAQ A WKETLGALYGALVHEARFFDPLARDL |
| UniRef90-G8LRW8 | H LTKWQLHWKEQLSNWYGULLHEAQYLDPVMRD EMFL |
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| UniRef90-COBL95 | S K |
| UniRef90 W4XLG3 | FTMDKLKQRLNQVEDFRRLDGEAKAFWCSLLKEFFVVAA |
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| UniRef90-UPIO003EEOBC2 | REVRKTKQGLGLKFAELVY |
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| UniRef90-14N8 | AVLDAELIREK |
| UniRef90-X1NNU9 |  |
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| UniRef90-A4DOT0 | ACMDREVHKIKRHLEQUTREALEGRWF G ELECLAVGHHCDT |
| UniRef90-UPIOO04798D0E | atVpaetirek |
|  | A T L D |
| UniRef90-V5FE90 | AVLETEVLRMKTLHSQTWTNEAVEGRWGSHDHQATQ AFD |
| 2R098 | S |
| UniRef90-F9T321 | ATLPTDVLKAKAMHNEMWTQEAVEGRWGSML |
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| UniRef90-X1UG45 | MTLSKDQLRFKQKVAMEYADLI YNGLWFSQL |
| UniRef90 E8VW | ATLPTDVLKAKA |
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| UniRef90-2J597 | AT |
|  |  |
| UniRef90 T1AUW5 | AVLSKAQNRFKPEAARKWVELVYEGFFHDPL |
| UniRef90-B0UN38 | ACVETRAlVVKQRLEQDWVQEAVSGRWGST |
| UniRef90- M2T590 |  |
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UniRef90-X1VFA5
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ESSQKKVNGTVY DKLYP YRFELLGDRSPNDLMQAEFGSY DVTQRNVSGEVRMKLFKG RCTPAGI ESPYSLYRTDLASF $E D S Q K T V S G D V F \square T L H P \quad Y R F V L D G U D S P Y D M L G A G F G Q Y$ $M N \vee Q G D Y E P$
AKS QERVEGKVQVSVLKGQVY ILGRESPLSLYNEELVSM
TSSQERVTGEVRTRLEPG RLVVEGVRSPHSLMDAASARY TSTQKRLTGTVYI ILHP YRFHLIGIKSKFDLMESNMAKY RWVAKAVTGEVTLELRRGNDYSILNTESPNLTYQPERLSM
 DQTQKFISGKI RVKLYKG MCQVVGRKSPYSLYEKRLATY $K D N Q R N V$
$T$
D S Q K T
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AF NRD $\square$ T G WVRWRDSPGQMFCDSR SAEKGMYVSRFPAF
AKSQERVEGKVQVSVFKGQVY LGGRESPLSLYNEELV


SATQARVHGAVTVETHGGRVDAVEVDSPMDLKSDTAV AHTAASVTGKVTLQLSEGSAQ LAALKAPAALYLTDRDQW

QETVQYVSGTVNYRLRAGAADVCA DRADAPDYDTDRDSW | $D T C A S R T T G S V$ | $W R$ |
| :--- | :--- |
| $K$ | $S Q E Q M E G K V$ |


S Q $\square$ A Q S VS GT VT FS LS Q G Q
ELV Q WAD GYVDVKLYKGS
A HTAEHVSGSVLFSLSRGHVLA TGUVADEPKYDRDRDAW NCSAR I TGGSVQWRLTPGSAQTTATLDAEHPLYLRDRESW LS S QRYVTGAVRLKLFKGNST SVGRKSPHSLYSFSLATY A HTAEHVSGSVLFKLSRGNADP
 NQYKEKITGDVEY LREGVADACS 】RAQQPLYLTERDEW
S N $\square A K Y \square N G S V S Y H L A N G T \quad S Q V T S \| I A S K P L Y L K E R D H W$ ASSQRMVNGEVVLETHGGSVQAVAVRSPH LLNAK GATY $R Q A \square A C V S G T V T Y R V$

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UniRef90-UPIO0036D44FE UniRef90-K2QJE8 UniRef90-U2QN10 UniRef90-R5V0H4 UniRef90-A0A021WCG3 UniRef90_E9EM33 UniRef90 UPI00047B0D66 UniRef90_UPI000421C68B UniRef90_UPI000382AED2 UniRef90 I4AQY4 UniRef90_UPI0004717ABE UniRef90_UPI000466C155 UniRef90 XOVJI3 UniRef90 UPI000401C95D UniRef90_UPI00036415B8 UniRef90-D5BG04 UniRef90-K1YKH5 UniRef90-W4T416 UniRef90_S5YAE1 UniRef90_S2LNU8 UniRef90_14EHS3 UniRef90-UPI0004162E3B UniRef90-J5KJV1 UniRef90-UPI0003A28E18 UniRef90-E4TPD2 UniRef90-E9FAP6 UniRef90-D5D8M7 UniRef90 E6X4IO UniRef90_U3ITA4 UniRef90-X1GZM2 UniRef90-COBGP7 UniRef90- X1VFA5 UniRef90_UPI00037A690E UniRef90-H2PTN8 UniRef90-G7NGB5 UniRef90-TOXRC4 UniRef90-T1A9P9 UniRef90 UPI000369968F UniRef90-A9DTT5 UniRef90-X1DAW4 UniRef90-UPI00036CC33C UniRef90 C0BL95 UniRef90-W4XLG3 UniRef90-H6NKA7 UniRef90_W4TM00 UniRef90_UPIO003EE0BC2 UniRef90_UPIO0034BC243 UniRef90_UPIO0036CE932 UniRef90-UPI0002C34604
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GEENKGWSGEDVKGFTK LANS DK $\square Y H A$
N CGHLYSQNDAEGFAKI FNDHTKQSAKSKMRQ
SSM AFDQRASKGFDDIYGNATVHSHNRNPKMVKEVQGS TKED AFNQDAAVGFIDIYGLPTQVNAMLHGGYS N VQGDYEPDDATGFIN N S L RLKEYHR
N CGHLYSQSDAEGFAKI FNIQSVKSRVRK
E NEGSFDHADSEGLLNLLTLNARTAAL

EASDGL NPASSQGYADIDSVETAALAK
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GEMNKGWTAAEAKGFIKILSNPGKDARKIQEK
GEMQKGWTSDDAKGFI KVLSTPLRVY
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GEMQHGWTADDAKGFIKVSSTPLRV

GEMNNAWSGDDVRGFSKIVSNQTMMHRK
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GEMNKNWSGDDVKGFTKI $\square G N P \square Q \| F T Q \square Q N K N Q K N$
DKGDQ FDQSASVGF HLWGLP
AQSADWGVEEAEGFIKLFGMSSTLYAQVNGG ARGQGS
GEMNNSWTGNDVKGFTK $\square$ GGNQTA $\square Y H Q$
GEMNNGWSGEDVKGFTKI LA
GEENKAWTANDAKGF $\square \mathrm{K}$ KLISNAGK $\square \mathrm{Y}$
GEANRAWT GEDVKGYTK $\square$ VSNSLN $\square$ YHQ
TSADS FDQEAAAGF $\square \mathrm{K}$ LTWT $\square \mathrm{PT} T \mathrm{~V}$
SS SGFNQQLCGPAATIRGLPFEVLALR QQSMDAAKS
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AQSASWSlEESQGFi KLYGLSTKTWSE
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GETAS $\square W E G R D A R G F T K \prod H G \square S Q V L W A R A A R G$
GEMNYSWTAEDVKGFTKGLSNQMKMYHNLNKNKKK
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Y A Q S A SWTEAESKGF $\quad$ K LIGQSSATW
GEENKAWSAQDAKGFIK LLSNAGR $\square Y K Q$
A QEFQQYS

YA Q S A S WGVEESAGF $\square \mathrm{K} \square \mathrm{L}$ G Q S T A T W

EKD\AA
EERA $\square$ A AESAPFARAGALLLTAA

ER
${ }_{\mathrm{E}}^{\mathrm{E}} \mathrm{K}$
DRGDQ FDQS
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EKE $\square$ AA
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AQSADWGVAEAEGF $\square R \square Y$ GMSST $\square W A E V N R E V G K A G T R G$

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S GPGT

VS DCLVAPS DD

EARGQG

N G H A A G V P

A A Q A EGVS P

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GLLVHSVCG
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HS SVC G IT Y SFSDTRSM

DGLVHSS $\square \mathrm{CG}$

NTYYFNGEAARPERRFAREAAA
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lupas_28
jnet conf conf
sol25 sol5 sol0 SOlO
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jpssm
 B

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lupas_14 lupas_28
jnet conf conf
sol25 sol5 sol0 hmm
jhmm
jpssm

90

RNGVG $R N G V G C$ RNGMG $R N G V G$ | $R N G I G$ |  |
| :--- | :--- |
| $R N G$ | $G$ | RNGVGLE H





100
LVRTHDGMYEAPGA110
TRTRDGNMYEAPGMALLISKALHFIIYD TGRTA GRTADGD!LEAPGLTLIACALKHLYE I SRTRDGAMYESPGMTLLATGLKFLME LVRTREGGVMYETPGMTMLAKGLKRFLYD FVRTQDGEWCESPGMTLLSKALRFLYD


lupas_21
lupas_14
lupas_28
jnet
conf sol25
sol5 sol0
jhmm
jpssm


UniRef90_G0UM16 UniRef90-U5KMV4 UniRef90-A9CQ01 UniRef90-U5KLZ5 UniRef90_K4DK07 UniRef90-G0TW06 UniRef90 Q57U86 UniRef90_J7H0E7 UniRef90-W6KV50 UniRef90_B1NME1
 RFLM S EVVSGVVELELLHQGDVI FLL


 HLTADVDGGVVDVEVNRGEVI FVVHVSRPVKLRLTKDMTD NLTQKFINGII KI KI YNGNVFII KKI IDNNVFYYKNNK

sol5
sol0
jhmm
jpssm

